UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB1998-0050

December 18, 1998

Cary Osterhaus
District Manager
Roseburg BLM District
777 NW Garden Valley Blvd.
Roseburg, Oregon 97470

Re: Section 7 consultation on actions affecting Umpqua River cutthroat trout and Oregon Coast coho salmon

Dear Mr. Osterhaus:

This responds to your Biological Assessment (BA) requesting consultation on actions that you feel are "not likely to adversely affect" (NLAA) or "likely to adversely affect" (LAA) Umpqua River cutthroat trout (UR cutthroat). You also noted that your effects determinations for the actions on Oregon Coast (OC) coho salmon and OC steelhead trout are the same as for UR cutthroat. This is because the habitat used by these species overlaps that of UR cutthroat and the BA assesses the effects of the proposed actions on this habitat. The BA describes the environmental baseline and effects of nine proposed timber sales: the Buck Creek Commercial Thinning is proposed for the Elk Creek watershed; the Emile Timber Sale is proposed for the Little River watershed; the Curtin Creek, Class of '98, and Red Top II Salvage timber sales are proposed for the Myrtle Creek watershed; the Lower Conley timber sale is proposed for the Rock Creek watershed; the Foghorn Cleghorn Commercial Thinning timber sale is proposed for the Upper Smith River watershed; the Sugar Pine Density Management timber sale is proposed for the Upper South Umpqua watershed; and the Diamondback timber sale is proposed for the Upper Umpqua watershed. The purpose of this letter is to document our biological opinion (BO) that the proposed timber sales are not likely to jeopardize the continued existence of the potentially affected anadromous salmonid species listed under the Endangered Species Act (ESA), as explained below.

The BA was submitted to the National Marine Fisheries Service (NMFS) with a letter on August 14, 1998. This consultation on Roseburg District Bureau of Land Management (BLM) actions is conducted under section 7(a) (2) of the ESA and its implementing regulations, 50 CFR 402.

The UR cutthroat (*Oncorhynchus clarki clarki*) was listed as endangered under the ESA by the NMFS on August 9, 1996 (61 FR 41514). Critical habitat for this species was designated on January 9, 1998 (63 FR 1388). The OC coho salmon (*O. kisutch*) and OC steelhead trout (*O.*

mykiss) Evolutionarily Significant Units (ESUs) were proposed as threatened under the ESA by NMFS on July 25, 1995 (60 FR 38011) and August 9, 1996 (61 FR 41541), respectively. The OC coho and OC steelhead ESUs were reclassified as candidates for listing under the ESA by NMFS on May 6, 1997 (62 FR 24588) and March 19, 1998 (63 FR 13347) respectively, but the OC coho was subsequently listed as threatened on August 10, 1998 (63 FR 42587). Because of the OC coho listing, we have considered your LAA determination for this species simultaneously along with UR cutthroat in this consultation. This is because the NMFS has adopted a habitat-based "jeopardy" analysis ("Biological requirements and status..."[NMFS 1997d], "Application of Endangered Species Act standards to..." [NMFS 1997a] and the NMFS Biological Opinion and Conference Opinion on continued implementation of Land and Resource Management Plans of several National Forests and the Resource Management Plans of several BLM Districts (hereafter referred to as the LRMP/RMP Opinion) dated March 18, 1997 [NMFS 1997b]) and OC coho habitat is completely overlapped by that of UR cutthroat in these proposed actions.

Roseburg BLM personnel made the effects determinations in the BA following procedures described in NMFS (1997a, 1997b, and 1997d). The effects of the individual actions proposed in the BA were evaluated by BLM biologists at the project scale using criteria based upon the biological requirements of UR cutthroat and other potentially affected anadromous salmonids and the Aquatic Conservation Strategy (ACS) objectives of the Northwest Forest Plan (NFP, USDA and USDI 1994). The BLM biologists also evaluated the likely effects of the proposed actions on the watershed scale, and in the long-term, in the context of watershed processes. The Level 1 streamlined consultation team for the Roseburg BLM District has defined "long-term" for ESA consultation purposes as about a decade, while short-term effects would occur for a lesser period, most typically a few months to a few years. The Level 1 team for the Roseburg BLM District met on August 11, 1998 to review the BLM's effect determinations and documentation of ACS consistency for the timber sales. The team concurred on the effects determinations and ACS consistency analyses.

Proposed Actions

The "proposed actions" are the sale and harvest of timber in: the Myrtle Creek and Upper South Umpqua fifth field hydrologic unit codes[1] (HUCs) of the South Umpqua River; the Little River and Rock Creek fifth field HUCs of the North Umpqua River; and the Elk Creek, Upper Smith River, and Upper Umpqua fifth field HUCs of the Mainstem Umpqua River, in Douglas County, Oregon. Specifically, in the Myrtle Creek fifth field HUC (a fifth field HUC will be considered a "watershed" for

[1] Stream drainages can be arranged in nested hierarchies, in which a large drainage is composed of smaller drainages. The BLM uses a system in which these drainages are numbered in a computer data base for analytical purposes. The numerical identifier of a particular drainage in this data base (which is located in a specific column or "field" in the data base) is called its hydrologic unit code, or HUC. This HUC increases with decreasing drainage area, thus a fourth field HUC (such as the South Umpqua River) is composed of several fifth field HUCs (such as Myrtle Creek, etc.) and so on. The NFP determined that the scale for Watershed Analyses should be 20 to 200 square miles, which often corresponds to a fifth field HUC.

consultation purposes), the Curtin Creek timber sale is proposed for the Upper South Myrtle Creek sixth field HUC and the Class of '98 timber sale is proposed for the Lower South Myrtle Creek sixth field HUC. In the Upper South Umpqua watershed, the Sugar Pine Density Management timber sale is proposed for the Deadman Creek sixth field HUC. Spanning two watersheds, the Red Top II Salvage timber sale is proposed for the Upper South Myrtle Creek sixth field HUC in the Myrtle Creek watershed and the Deadman Creek sixth field HUC in the Upper South Umpqua watersheds.

In the Little River watershed, the Emile timber sale is proposed for the Emile Creek sixth field HUC. In the Rock Creek watershed, the Lower Conley timber sale is proposed for the Conley Creek and Taylor Creek sixth field HUCs. In the Elk Creek watershed, the Buck Creek Commercial Thinning timber sale is proposed for the Upper Pass Creek and Upper Elk Creek sixth field HUCs. In the Upper Smith River watershed, the Foghorn Cleghorn Commercial Thinning timber sale is proposed for the Middle Smith sixth field HUC. In the Upper Umpqua watershed, the Diamondback timber sale is proposed for the Lost Canyon Creek and Yellow Creek sixth field HUCs. The Environmental Assessments (EAs) for the timber sales, which were appended to the BLM's BA, contain detailed information on each of the sales, but brief summaries are provided below.

The Curtin Creek timber sale (Curtin Creek) was proposed as replacement volume on the Olalla Wildcat timber sale and was partially harvested prior to the April 28, 1998 District Court ruling that invalidated the previous Biological Opinion for the sale. The BLM has already regeneration harvested about 14 acres of timber in one unit and plans to commercially thin about 11 acres in another unit. Both units are in the General Forest Management Area (GFMA) and Connectivity land designations of the Matrix land allocation. Yarding of harvested timber for Curtin Creek was and would be accomplished by partial (one-end) or full uphill suspension cable-yarding. Approximately 0.2 miles of temporary road would be constructed for the commercial thinning. The regeneration-harvested unit would be broadcast-burned to prepare the area for seedling planting, while slash from the commercial thin unit would be hand-piled and burned. No harvest or road construction is proposed for Riparian Reserves (RR).

In the Class of '98 timber sale (Class of '98), the BLM proposes to regeneration harvest 205 acres of GFMA and Connectivity land. About half of the yarding of harvested timber would be by helicopter, with most of the remaining yarding accomplished by partial and full-suspension cable. About 6% of the sale acreage would be tractor-yarded. About 0.37 miles of permanent road, 0.04 miles of semi-permanent road, and 0.33 miles of temporary road would be constructed. About 0.5 miles of road would be fully decommissioned, and about 7 miles of existing roads would be renovated. About 35% of the harvested acreage would be broadcast-burned to prepare the areas for seedling planting, while hand piling and burning of slash would occur on about 3 acres. No harvesting or road construction is proposed for RR, but part of the road decommissioning includes removal of a stream culvert.

In the Red Top II Salvage timber sale (Red Top II), the BLM proposes to salvage about 132 acres of blown-down timber in GFMA, Connectivity and RR. The purpose of the salvage is to reduce the

potential for insect infestation and to reduce fuel loads and the associated risk of catastrophic fire. About 23 acres of the salvage is proposed for RR and approximately 1 to 2 acres of green trees would also be cut for temporary road construction and to facilitate yarding (though none of these would occur in RR). No-cut buffers of 90 feet would be established in the RR of the non-fishbearing streams and one-third to one quarter of the blowdown would be left in the salvage areas. About 69 acres of Red Top II would occur in the Deadman Creek sixth field HUC, which is a part of the Upper South Umpqua Tier 1 Key Watershed. About 60% of the salvage would be partial-suspension cable-yarded, while the remainder would be tractor-yarded. About 0.7 miles of existing road would be renovated and about 0.3 miles of temporary road would be constructed, none in RR.

In the Sugar Pine Density Management timber sale (Sugar Pine), the BLM proposes to clear all trees from a radius of 35 to 40 feet around selected sugar pines, in order to increase the survival of the individual sugar pines. Removal of trees adjacent to the selected sugar pines would reduce competition for sunlight and water on the selected individuals and also reduce the risk of mountain pine beetle infestation. Sugar pines were historically more abundant in these stands but have diminished in abundance due to disease and selective harvest. The BLM seeks to maintain this species as a component of the stands and believes that removal of competing trees will encourage vigor in the selected trees, thereby reducing the likelihood of disease. The action would occur in 169 acres of GFMA, Connectivity, and RR within the Upper South Umpqua Tier 1 Key Watershed. The BLM estimates that approximately 30 percent of the area outside of RR would be harvested. Within the 31 RR acres, approximately 33 sugar pines would be treated, (none within 90 feet of the non-fishbearing streams in the area) involving about 3 acres of harvest. Most timber yarding would be by tractor, but a substantial minority of the acreage would be yarded by uphill partial-suspension cable. About 12 acres (outside of RR) would be downhill cable-yarded. No roads would be constructed or renovated, and all existing and newly created skid trails would be ripped after completion of harvest.

In the Emile timber sale (Emile), the BLM proposes to harvest timber in approximately 139 acres. Sixty-eight acres would be regeneration-harvested, 38 acres would be selective cut (to 50% crown closure), 29 acres would be commercially thinned in upland areas, and 4 acres would be commercially thinned in RR (with a 20-foot no-cut buffer on the non-fishbearing streams). The Little River watershed is in the Adaptive Management Area (AMA) land designation. About two-thirds of the trees harvested would be partial suspension cable-yarded, with the remainder yarded by helicopter. Approximately 0.3 miles of temporary road would be constructed, about 2.5 miles of existing road would have its drainage system upgraded, and about 0.65 miles of existing road would be decommissioned. About 65 acres of the harvested area would be broadcast-burned to prepare the area for seedling planting, while slash from about another 40 acres would be hand-piled and burned.

In the Lower Conley timber sale (Lower Conley), the BLM proposes to partial-suspension cable-yard 41 acres of regeneration harvest which has already been felled. This would require the construction of 0.5 miles of temporary road and renovation and storm-proofing of 2.3 miles of existing road. About 0.35 miles of existing road would be decommissioned. None of the yarding and road construction

would occur within RR. About 35% of the harvested acreage would be broadcast-burned to prepare the areas for seedling planting.

In the Buck Creek Commercial Thin timber sale (Buck Creek) the BLM proposes to thin from below 267 acres in GFMA/Connectivity. Another 48 acres would be thinned from below in RR. The BLM would have 20 to 200-foot no-cut buffers on the RR of the non-fishbearing streams of the sale area. Partial-suspension yarding would be used for the entire sale. About 1.15 miles of temporary road would be constructed and about 2.7 miles of existing roads would receive road surfacing and drainage upgrades.

In the Foghorn Cleghorn Commercial Thin timber sale (Foghorn Cleghorn) the BLM proposes to thin from below 253 acres in GFMA/Connectivity. Another 134 acres would be thinned from below in RR. The BLM would have 20 to 200-foot no-cut buffers on the RR of the non-fishbearing streams of the sale area. The sale is in the Upper Smith River Tier 1 Key watershed. Partial-suspension (about 40%), helicopter (about 34%), and tractor (about 26%) yarding methods would be used. About 0.27 miles of permanent road and about 1 mile of temporary road would be constructed. About 0.74 miles of valley bottom road would be fully decommissioned, and about 11.5 miles of existing roads would receive road surfacing and drainage upgrades (including ten new larger stream culverts). Along with timber harvest, fill from old skid trails would be removed at several stream crossings. The BLM proposes to construct a 145-foot temporary road within RR in Foghorn Cleghorn, in order to cable-yard timber thinned within the RR.

In the Diamondback timber sale (Diamondback), the BLM proposes to regeneration-harvest 97 acres of GFMA/Connectivity land. Partial-suspension cable yarding would occur on about two-thirds of the acreage, with smaller amounts of helicopter and tractor-yarding. About 0.11 miles of temporary road would be constructed, about 0.05 miles of dirt road would be decommissioned, and about 8 miles of existing roads would receive road surfacing or drainage upgrades. Slash in about 90 acres of the harvested area would be either broadcast-burned or hand-piled and burned to prepare the area for seedling planting. No harvest or road construction would occur in RR.

Biological Information and Critical Habitat

The biological requirements (including the elements of critical habitat) of each of the ESUs are discussed in the LRMP/RMP Opinion, NMFS (1997b) and in NMFS (1997d). Environmental baseline conditions in the Umpqua Basin are discussed in Johnson et al. (1994), pages 2-7 of NMFS (1997d) and pages 13-14 of the LRMP/RMP Opinion. Cumulative effects as defined under 50 CFR 402.02 are discussed for the Umpqua Basin on pages 40-43 of the NMFS LRMP/RMP Opinion. These respective analyses are incorporated herein by this reference. NMFS is not aware of any newly available information that would materially change these previous analyses of biological requirements, environmental baseline or cumulative effects for the purpose of this Opinion. Some general biological information is provided below.

UR cutthroat inhabit the Umpqua River Basin of southwest Oregon. The Evolutionarily Significant Unit (ESU) consists of resident, potamodromous, and anadromous life histories. Individuals of all three forms have the potential to inhabit the watersheds discussed in this Biological Opinion (BO). UR cutthroat are known to be year-around inhabitants (using rearing, feeding, spawning, and incubation habitat) of all of the subject watersheds. The watersheds are also likely used as migration corridors by both adults and juveniles of the ESU. Historically, adult anadromous cutthroat trout passed Winchester Dam (on the North Umpqua River) predominantly from late June through November (with peaks in mid-July and mid-October), while juvenile outmigration is thought to occur chiefly from March through October (Johnson et al. 1994).

OC coho are an anadromous species which typically have a three-year life-cycle and occur in all seven subject watersheds. Adults spawn in the late fall and winter, with fry emergence occurring the following spring. Juvenile coho salmon rear for about a year in natal streams and outmigrate to the ocean as smolts in the spring. Some male coho return to freshwater to spawn the fall and winter of the same year as their smolt migration, but the majority of adult OC coho do not return to spawn until having spent about 18 months in the ocean. Thus, an active OC coho stream would be used for some life-stage as rearing, feeding, spawning, and incubation habitat year-around.

The BLM's Myrtle Creek Watershed Analysis (WA) lists approximately 93 miles of stream in that watershed inhabited by anadromous fish (including OC coho and UR cutthroat) and at least 78 miles used by resident fish (mostly UR cutthroat). The Deadman/Dompier WA lists 3.4 miles of stream used by anadromous fish and an additional 4 miles used by resident fish in the Deadman Creek sixth field HUC. The Little River WA documents that only the lower 1.5 miles of Emile Creek supports anadromous fish runs because of the presence of an impassable waterfall. However, the Little River watershed as a whole provides about 48 miles of habitat for anadromous fish, and another 70 miles of resident fish habitat. According to the Rock Creek WA, about 54 miles of miles of stream support anadromous or resident salmonids in the Rock Creek watershed. The sixth field HUCs for Diamondback support about 12 miles of anadromous/resident salmonid habitat. Similar estimates were not available for the full Upper South Umpqua, Upper Smith River, Elk Creek, and Upper Umpqua watersheds, but each provide miles of habitat for anadromous and resident salmonids.

Although general information about the populations of UR cutthroat and OC coho within the various watersheds is available (e.g., those streams likely inhabited, see above), specific information on the size and health of anadromous fish populations in the Umpqua Basin is often lacking or incomplete. Because of the general paucity of knowledge which would allow the BLM and NMFS to assess the relative health of anadromous salmonid populations on a stream or watershed scale and the fact that all fish species, populations, and individuals depend on adequate habitat, the NMFS uses a habitat-based system in ESA consultation on land-management activities (NMFS 1997d). The NMFS has applied the concept of Properly Functioning Condition (PFC) to assess the quality of the habitat that fish need to survive and recover. This concept is discussed in the next section.

Site-specific environmental baseline descriptions and effects determinations were made by BLM personnel for each of the proposed timber sales. This information is found in the EAs, watershed analyses (WAs), and the project-level (sixth field HUC) Matrices of Pathways and Indicators (MPIs) which were included in the BA. In addition, watershed-level information on UR cutthroat and OC coho habitat is provided in the EAs, WAs, and fifth-field MPIs also included in the BA. NMFS concurred with these site-specific and watershed environmental baseline descriptions and effects determinations in the streamlined consultation process and NMFS considered them in addition to the broad scale analysis completed for the LRMP/RMP Opinion described above.

Evaluation of Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by the consultation regulations (50 CFR 402). NMFS (1997a) describes how NMFS applies the ESA jeopardy and destruction/adverse modification of critical habitat standards to consultations for Federal land management actions in the Umpqua River basin.

As described in NMFS (1997a), the first steps in applying the ESA jeopardy standards are to define the biological requirements of UR cutthroat and OC coho and to describe the species' current status as reflected by the environmental baseline. In the next steps, NMFS' jeopardy analysis considers how proposed actions are expected to directly and indirectly affect specific environmental factors that define properly functioning aquatic habitat essential for the survival and recovery of the species. This analysis is set within the dual context of the species' biological requirements and the existing conditions under the environmental baseline (defined in NMFS 1997d). The analysis takes into consideration an overall picture of the beneficial and detrimental activities taking place within the action area, which is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). If the net effect of the activities is found to jeopardize the listed species, then NMFS must identify any reasonable and prudent alternatives to the proposed action.

Biological Requirements. For this consultation, NMFS finds that the biological requirements of UR cutthroat and OC coho are best expressed in terms of current population status and environmental factors that define properly functioning freshwater aquatic habitat necessary for survival and recovery of the species. The NMFS defines this "properly functioning condition" (PFC) as the state in which all of the individual habitat factors operate together to provide a healthy aquatic ecosystem that meets the biological requirements of the fish species of interest. Individual, measurable habitat factors (or indicators) have been identified (e.g., water temperature, substrate, etc.) and the "properly functioning" values for these indicators have been determined using the best information available. These indicators, when considered together, provide a summary of the conditions necessary to ensure the long-term survival of aquatic species.

The NMFS has assembled a set of these indicators in a form called the Matrix of Pathways and Indicators (MPI, NMFS 1996). The MPI is a table that lists several categories or "pathways" of essential salmonid habitat (such as water quality, instream habitat elements, and flow/hydrology). Under these pathways are quantitative habitat indicators for which ranges of values are identified that correspond to a "properly functioning" condition, an "at risk" condition, and a "not properly functioning" condition. Because these habitat measurements are more readily available than quantitative measurements of biological variables such as incubation success, standing crop, and growth rate, the NMFS and BLM are able to assess the health of stream reaches or watersheds based on the condition of their component indicators. Such an assessment provides a baseline description of the health of the stream/watershed and also allows the effects of an action (e.g., timber harvest) to be evaluated.

Properly functioning watersheds, where all of the individual factors operate together to provide healthy aquatic ecosystems, are necessary for the survival and recovery of the listed species. It follows, then, that an action which would cause the habitat indicators of a watershed to move to a degraded condition, or one which further degrades a "not properly functioning" watershed, is also likely to jeopardize the continued existence of the listed species.

In addition to the use of the MPI at the watershed level to assist in making "jeopardy" determinations in Section 7 consultations (especially for land management agencies), the NMFS also uses the MPI at the site or project scale. Assuming that a Federal agency determines that an action is a "may affect," either informal or formal consultation is required. To assist in this determination, the action agency prepares a project-level MPI. If no "degrades" occur at this scale, then the action is probably not likely to adversely affect individuals of a listed species and an informal Section 7 consultation is appropriate. If the proposed action degrades any of the indicators at this smaller scale (often the sixth or seventh field HUC), then the action is generally considered to be a "likely to adversely affect" and formal consultation must occur.

Current range-wide status of listed species under environmental baseline. NMFS described the current population status of the UR cutthroat in its status review (Johnson et al. 1994) and in the final rule (August 9, 1996, 61 FR 41514). Critical habitat for UR cutthroat was designated by the NMFS on January 9, 1998 (63 FR 1338). NMFS also described the current population status of OC coho in a status review (Weitkamp et al. 1995) and in the final rule (August 10, 1998, 63 FR 42587). The recent range-wide status of both these species is summarized in NMFS (1997d).

Current status of listed species under environmental baseline within the action areas. As noted above, the "action area" includes all areas directly or indirectly affected by the proposed action. The general action areas can be defined as the Myrtle Creek, Upper South Umpqua, Little River, Rock Creek, Elk Creek, Upper Smith River, and Upper Umpqua watersheds.

As noted above, UR cutthroat and OC coho use the action areas as rearing, feeding, spawning, and incubation habitat, as well as a migration corridor. The environmental baseline of the action areas are

dominated by conditions rated largely as "not properly functioning" or "at risk" (see watershed MPIs in BA). These conditions are likely primarily the result of past forest management and agricultural practices, in particular, timber harvest/clearing within riparian zones, large-scale clear-cut timber harvest, road construction (especially within riparian zones), and timber yarding in riparian zones and streams.

Indicators particularly at issue in this consultation are those which would likely be degraded by the proposed actions at the project scale, although the NMFS has also reviewed the BLM's "maintain" and "restore"effect determinations. In this case, the "large woody debris" and "riparian reserves" indicators were determined to be degraded (and restored) at the project scale by three timber sales, and were listed as "not properly functioning" or "at risk" for all three of the subject watersheds; "sediment" and "substrate" were determined to be degraded by at six of the nine actions and "disturbance history" by seven of the nine actions. The last three indicators were also predominantly listed as "not properly functioning" or "at risk" in the seven subject watersheds.

Based on the best information available on the current status of UR cutthroat and OC coho (NMFS 1997d), NMFS assumptions given the information available regarding population status, population trends, and genetics (NMFS 1997a) and the relatively poor environmental baseline conditions within the action areas (see MPIs in BA and UR cutthroat and OC coho final listing rules), NMFS finds that the environmental baseline does not currently meet all of the biological requirements for the survival and recovery of the listed species within the action area. Actions that do not retard attainment of properly functioning aquatic conditions when added to the environmental baseline are necessary to meet the needs of the species for survival and recovery.

Analysis of Effects

The effects determinations in this opinion were made using a method for evaluating current aquatic conditions (the environmental baseline) and predicting effects of actions on them. This process is described in the document "Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996). This assessment method (in which MPIs are assembled by action agency biologists) was designed for the purpose of providing adequate information in a tabular form for NMFS to determine the effects of actions subject to consultation. Additionally, a detailed discussion of the potential effects of timber harvest and associated activities on salmonid habitat is presented in the NMFS document entitled "Potential Effects of Timber Harvest and Associated Activities on Salmonid Habitat and Measures to Minimize Those Effects" (NMFS 1997c) and is incorporated herein by this reference. Similarly, a general discussion of the potential effects of associated road construction on salmonids and their habitat is provided in LRMP/RMP Opinion, NMFS (1997b).

The BLM uses the MPI to make project-level effects determinations: whether an action is "not likely to adversely affect" or "likely to adversely affect" the ESA-listed species (in this case, UR cutthroat and

OC coho). If any of the indicators is thought to be degraded at the project level by the action, the action is determined to LAA. In turn, if a project was determined to LAA a listed species, then, based on "jeopardy" standard delineated in the LRMP/RMP Opinion, the BLM must determine whether the project, when combined with the environmental baseline for the watershed over the long-term, is consistent with the ACS of the NFP. This "consistency" is condensed to a two-part test in the LRMP/RMP Opinion (NMFS 1997a, page 14): is the proposed action in compliance with the standards and guidelines for the relevant land allocation, and does the proposed action meet all pertinent ACS objectives? This determination is made with the assistance of the MPI at the watershed scale.

Project-Level Effects. The BLM-provided MPIs for the effects of actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the project area for each sixth field HUC affected by the proposed timber sales. The results of the completed checklist for the proposed action provides a basis for determining the effects of the action on the environmental baseline in the project area.

In this consultation, the BLM provided an MPI for one or two sixth field HUCs for each of the nine timber sales. In general, the BLM determined the actions would not degrade indicators at the project level chiefly because of the maintenance/enhancement of the riparian zones. Also, the BLM believes that timber harvest would be performed in ways which would have little or no effect on the hydrologic characteristics of the sites.

Curtin Creek. For Curtin Creek, the BLM found that all of the indicators would be maintained. The BLM attributes the maintenance of all the indicators to the small area that would be affected by the regeneration harvest and broadcast burning and the lack of activity in the RR. Because no "degrade" checkmarks occurred at the project scale, the BLM determined that Curtin Creek is not likely to adversely affect UR cutthroat. The NMFS concurs with the BLM on the project-level effects determination.

Class of '98. For Class of '98, the BLM found, as shown in the sixth field MPI, that the "sediment," "substrate,"and "disturbance history" indicators would be degraded, and all other indicators would be maintained. The BLM attributes the "degrade" checkmark for "sediment" and "substrate" to a transitory increase in stream sedimentation, as a result of road renovation, culvert replacement, and ground-based timber yarding. The NMFS notes that the proposed road and skid trail obliteration/decommissioning could also cause short-term, localized sedimentation. In Class of '98, as well as the other timber sales in this BO, RR buffers and/or road construction and maintenance techniques should prevent most (if not all) of the ground-disturbing activities from transmitting substantial amounts of sediment into stream channels. The BLM also attributed a "degrade" to the "disturbance history" indicator because the action would result in lessened canopy cover. However, the BLM believes that lessened canopy cover would not necessarily cause any adverse effect on UR cutthroat habitat. "Disturbance history" cannot directly affect aquatic biota, but may affect other

mechanisms which are also included among the indicators. Because of the presence of the "degrade" checkmarks on the project scale, the BLM determined that Class of '98 is likely to adversely affect UR cutthroat. The NMFS concurs with the BLM on this project-level effects determination.

Red Top II. For Red Top II, the BLM found that all of the indicators would be maintained. The BLM attributes the maintenance of all the indicators to the small area that would be affected by the harvest of green trees, the no-cut buffers and amount of blowdown retention in RR, and the lack of road construction in the RR.

It is unclear, however, whether the proposed project would meet Standard and Guideline (S&G) TM-1 of the NFP Record of Decision (ROD) because of the proposed salvage of trees in RR. This S&G prohibits salvage within RR unless "watershed analysis determines that present and future coarse woody debris needs are met and other ACS objectives are not adversely affected." The Myrtle Creek WA indicates that large (coarse) woody debris (LWD) is generally not well distributed or abundant in the watershed and the sixth field MPI rates the LWD indicator as "not properly functioning" for the index stream reach (downstream of the Red Top II sale area). The Deadman/Dompier WA states that portions of stream reaches lack LWD and the sixth field MPI also rates the LWD indicator for a stream reach downstream of the proposed sale as "not properly functioning."

On the other hand, the proposed RR salvage would occur at the head of the watershed, in RR protecting very small, non-fishbearing streams. It is very likely that the 90-foot "no-cut" zone on each side of these streams will provide more than enough LWD for instream processes in these stream reaches and it is unlikely that much (if any) LWD would be transported very far below the proposed sale boundaries. In the event of landslide or debris flow, LWD may be supplied to downstream channels, but even outside the RR, the BLM proposes to leave large quantities of LWD. In addition, the proposed salvage may help to protect existing green trees in the RR from insect infestation and fire.

Based on the site-specific information, the NMFS concludes that implementing Red Top II will provide sufficient LWD to avoid inconsistency with the ACS for the anadromous fish species at issue in this BO. In addition, because no "degrade" checkmarks occurred at the project scale, the BLM determined that Red Top II is not likely to adversely affect UR cutthroat. The NMFS concurs with the BLM on this project-level effects determination.

Sugar Pine. For Sugar Pine, the BLM found that on the project level, all but the "disturbance history" indicator would be maintained. The BLM believes that no actual degradation of riparian or instream habitat that would affect listed anadromous fish species would occur. The BLM attributes the maintenance of all other indicators to the small area that would be affected by the clearing of trees around the selected sugar pines, the no-cut buffers in RR and the lack of road construction/renovation.

It unclear, however, that the proposed project would meet the S&G TM-1 of the NFP ROD because of the proposed harvest of trees in RR. This S&G prohibits timber harvest within RR unless to "[A]pply silvicultural practices ... to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain ACS objectives." While the retention of sugar pine in the stand may be a desired and meaningful goal, it does not seem likely that any of ACS objectives would be affected by the abundance of individuals of this species in the stand.

On the other hand, it is seems unlikely that the proposed harvest of a total of 3 acres of trees from around 33 sugar pines scattered over 31 acres would affect individuals of the listed species. In addition to the relatively minor disturbance that would be caused by the harvest prescription, the proposed sale area is in a headwaters area, with RR protecting very small, non-fishbearing streams. It is very likely that the 90-foot "no-cut" zone on each side of these streams, along with the vast majority of undisturbed area in the remainder of the RR would be sufficient to maintain (and in time, enhance) instream and riparian habitat values. In addition, the Deadman/Dompier WA recommends the type of treatment proposed in Sugar Pine, although the WA does not mention whether RR should be included in the prescription.

Based on the site-specific information, the NMFS concludes that the RR disturbance that would occur with implementation of Sugar Pine is minor enough to avoid inconsistency with the ACS for the anadromous fish species at issue in this BO. In addition, although a "degrade" checkmark for "disturbance history" occurred at the project scale, the BLM determined that Sugar Pine is not likely to adversely affect UR cutthroat. This is because the indicator would not be degraded enough to trigger degradation of one of the other indicators that can have a direct effect on the listed species. The NMFS concurs with the BLM on the project-level effects determination.

Emile. The BLM found, as shown in the sixth field MPI, that the "sediment," "substrate," and "disturbance history" indicators would be degraded, the "LWD" and "RR" indicators would be both restored and degraded, and all other indicators would be maintained. The BLM attributes the "degrade" checkmarks for "sediment" and "substrate" to a transitory increase in stream sedimentation, due primarily to road-related activities (such as culvert replacement during road renovation and decommissioning). The BLM also attributed a "degrade" to the "disturbance history" indicator because the action would result in lessened canopy cover. However, the BLM believes that the reduction in canopy cover would not necessarily cause any adverse effect on UR cutthroat habitat, as changes in the indicator would likely not directly affect riparian or aquatic habitat. Because the proposed thinning within RR would cause some disturbance and remove some trees (although not within the immediate riparian zone) the "LWD" and "RR" indicators are marked as "degrades." However, the long-term effect on both indicators is likely to be positive because the remaining trees will grow more quickly and should eventually restore the RR more quickly than if the RR is not thinned. Because of the presence of the "degrade" checkmarks on the project scale, the BLM determined that Emile is likely to adversely affect UR cutthroat. The NMFS concurs with the BLM on this project-level effects determination.

Lower Conley. The BLM found, as shown in the sixth field MPI, that the "sediment," "substrate," and "disturbance history" indicators would be degraded and all other indicators would be maintained. The BLM attributes the "degrade" checkmark for "sediment" and "substrate" to a transitory increase in stream sedimentation, due primarily to road-related activities (such as culvert replacement during road renovation and decommissioning). The BLM also attributed a "degrade" to the "disturbance history" indicator because the action would result in lessened canopy cover. However, the BLM believes that a reduction in canopy cover would not necessarily cause any adverse effect on UR cutthroat habitat, as changes in the indicator would likely not directly affect riparian or aquatic habitat. Because of the presence of the "degrades" checkmarks on the project scale, the BLM determined that Lower Conley is likely to adversely affect UR cutthroat. The NMFS concurs with the BLM on this project-level effects determination.

Buck Creek. The BLM found, as shown in the sixth field MPI, that the "sediment," "substrate," and "disturbance history" indicators would be degraded, the "LWD" and "RR" indicators would be both restored and degraded, and all other indicators would be maintained. The BLM attributes the "degrade" checkmark for "sediment" and "substrate" to a transitory increase in stream sedimentation, due primarily to road-related activities (such as culvert replacement during road renovation). The BLM also attributed a "degrade" to the "disturbance history" indicator because the action would result in lessened canopy cover. However, the BLM believes that canopy cover reduction would not necessarily cause any adverse effect on UR cutthroat habitat, as changes in the indicator would likely not directly affect riparian or aquatic habitat. Because the proposed thinning within RR would cause some disturbance and remove some trees (although not within the immediate riparian zone) the "LWD" and "RR" indicators are marked as "degrade." However, the long-term effect on both indicators is likely to be positive because the remaining trees will grow more quickly and should eventually restore the RR more quickly than if the RR is not thinned. Because of the presence of the "degrade" checkmarks on the project scale, the BLM determined that Buck Creek is likely to adversely affect UR cutthroat. The NMFS concurs with the BLM on this project-level effects determination.

Foghorn Cleghorn. The BLM found, as shown in the sixth field MPI, that the "sediment," "substrate," and "disturbance history" indicators would be degraded, the "LWD" and "RR" indicators would be both restored and degraded, and all other indicators would be maintained. The BLM attributes the "degrade" checkmark for "sediment" and "substrate" to a transitory increase in stream sedimentation, due primarily to road-related activities (such as culvert replacement during road renovation). The BLM also attributed a "degrade" to the "disturbance history" indicator because the action would result in lessened canopy cover. However, the BLM believes that canopy cover reduction would not necessarily cause any adverse effect on UR cutthroat habitat, as changes in the indicator would likely not directly affect riparian or aquatic habitat. Because the proposed thinning within RR would cause some disturbance and remove some trees (although not within the immediate riparian zone) the "LWD" and "RR" indicators are marked as "degrade." However, the long-term effect on both indicators is likely to be positive because the remaining trees will grow more quickly and should eventually restore the RR more quickly than if the RR is not thinned.

The BLM also proposes to construct approximately 145 feet of temporary road within RR in order to yard thinned RR timber by partial suspension cable, rather than by tractor. Road construction in the RR is permitted under S&G RF-2 if a WA has been completed and such construction is minimized. The BLM believes that this action would not hinder the RR function because the road would be built on the top of a ridge at the edges of two adjacent non-fishbearing stream RRs, well away from the functional riparian zones. The action would also cause less disturbance of the RR than tractor-yarding.

Because of the presence of the "degrade" checkmarks on the project scale, the BLM determined that Foghorn Cleghorn is likely to adversely affect UR cutthroat. The NMFS concurs with the BLM on this project-level effects determination.

Diamondback. The BLM found, as shown in the sixth field MPI, that the "sediment," "substrate," and "disturbance history" indicators would be degraded and all other indicators would be maintained. The BLM attributes the "degrade" checkmark for "sediment" and "substrate" to a transitory increase in stream sedimentation, due primarily to road-related activities (such as culvert replacement during drainage upgrades and decommissioning). The BLM also attributed a "degrade" to the "disturbance history" indicator because the action would result in lessened canopy cover. However, the BLM believes that canopy cover reduction would not necessarily cause any adverse effect on UR cutthroat habitat, as changes in the indicator would likely not directly affect riparian or aquatic habitat. Because of the presence of the "degrade" checkmarks on the project scale, the BLM determined that Diamondback is likely to adversely affect UR cutthroat. The NMFS concurs with the BLM on this project-level effects determination.

Watershed-Level Effects. In the BA, the BLM provided watershed-scale MPIs and ACS consistency reviews for each of the nine timber sales. The watershed-scale MPIs evaluate the effects of the proposed action on habitat indicators in the fifth-field HUC relative to the long-term environmental baseline. While many actions, including those that may be beneficial in the long-term, have short-term, small scale adverse effects, only those actions which would adversely affect the environmental baseline over an entire watershed over a long period would receive a "degrade" checkmark. It is important to realize that both active and passive restoration activities contribute to the environmental baseline. In particular, the passive restoration that will occur over the long-term (at least a decade, see above), especially in RRs, is a principal component of the watershed recovery aspect of the NFP. The role of RRs, LSRs, etc., in restoration of watersheds is described in the NFP ROD (USDA and USDI 1994) and in the LRMP/RMP Opinion (NMFS 1997b).

The ACS consistency reviews included a description of how the proposed projects compared to the applicable NFP S&Gs, and how the proposed projects complied with the nine ACS objectives. Because there is strong correspondence between the habitat indicators of the MPI and the ACS objectives, it is likely that if none of the habitat indicators in the watershed level MPI is degraded by an action then Compliance with ACS objectives is also achieved. In the descriptions below, typically only those MPI habitat indicators which were determined to "degrade" or "restore" at the sixth field HUC

are discussed; similarly, the S&Gs and ACS objectives which may be of issue are noted. Whether discussed below or not, information on all of the habitat indicators, relevant S&Gs, and ACS objectives was provided in the BLM's BA, and was considered in our analysis.

Myrtle Creek watershed. Curtin Creek, Class of '98, and part of Red Top II are proposed for the Myrtle Creek watershed (which is a non-Key Watershed under the NFP). The BLM determined that all of the habitat indicators would be maintained at the watershed scale, despite the project-level "degrades" which were recorded in the Lower South Myrtle Creek sixth field HUC for Class of '98. As noted under "Project-level effects," above, the "sediment" and "substrate" indicators were thought to be degraded due to road and skid trail-related actions such as maintenance, renovation, and decommissioning. In the long-term and on the watershed scale, however, these "degrades" were not thought to be consequential because of their short-term and highly localized nature. Proper road maintenance and renovation, in fact, is likely to diminish the adverse effects of roads by allowing the drainage design features to work properly, and decommissioning should be an even more beneficial action.

Also for Class of '98 (in the Lower South Myrtle Creek sixth field HUC), the "disturbance history" indicator was determined to be degraded, but on the watershed scale a "maintain" was checked. This is because the amount of roads and skid trails in the watershed would be slightly reduced and because the amount of canopy cover removed during Class of '98 (205 acres) and Red Top II (1-2 acres) is small when compared to the long-term baseline in the watershed. Thinning in Curtin Creek would temporarily reduce canopy cover on 11 acres by about half, but the lessened stand density should allow the remaining trees to grow more quickly. The BLM thus expects the canopy cover of the stand to be restored to its former density within 5 to 10 years, so there should be no long-term adverse effect on canopy closure. The salvage in Red Top II would not reduce canopy cover at all. Thus, the adverse effects of the sixth field "disturbance history" degrade should not impair recovery of the watershed.

Regarding the "disturbance history" effects on peak flows, for example, according to the Myrtle Creek WA, about 1,012 acres of Federal ownership in the watershed has vegetation in the 0-10 year age class, about 890 acres of Federal ownership is in the 11-20 year age class, and about 1,292 acres of Federal ownership is in the 21-30 age class. In this watershed, land is considered to be hydrologically recovered when vegetation reaches 30 years of age. Therefore, within the next 10 years (the long-term), nearly 1,300 acres in the watershed will achieve full hydrologic recovery. During the same period, growth in another 1,900 acres will achieve partial recovery. Even with canopy cover reduced to zero on 206 to 207 acres, the watershed as a whole would move closer to hydrologic recovery, due to passive restoration of canopy cover.

During the same ten year period, other timber sales on Federal land will be proposed, but (again, according to the WA) approximately 42% of the Federal forest land in the Myrtle Creek watershed will be protected as RR. Therefore, approximately two-fifths of the Federal forest land in the watershed (the most important portion, from an anadromous fish viewpoint) will be protected from non-restorative

activities, so that the relatively small amounts of regeneration harvest, etc. proposed for GFMA and Connectivity lands should not retard the recovery of the watershed as a whole. The slight increases in factors which may affect peak flows is also discussed in the EA for the sale.

Based on the EA and ACS Consistency Review for the three proposed timber sales in the Myrtle Creek watershed, it appears that all of the relevant S&Gs would be observed, with the possible exception of TM-1 in Red Top II (see discussion under "Project-level effects"). Compliance with the nine ACS objectives is also adequately documented by the BLM; compliance with the sixth objective, "maintain and restore instream flows..." is discussed in the previous paragraphs.

Upper South Umpqua watershed. The BLM has proposed Sugar Pine and part of Red Top II for the Upper South Umpqua watershed (which is part of a Tier 1 Key Watershed) and determined that all of the habitat indicators would be maintained at the watershed scale, despite the project-level "degrade" which was recorded in the Deadman Creek sixth field HUC for Sugar Pine. The Federal land in the Upper South Umpqua watershed is mostly upstream of Deadman Creek and is managed by the U.S. Forest Service (FS). Thus, the BLM's WA for this area covers only the Deadman and Dompier Creek areas. As noted under "Project-level effects," above, the "disturbance history" indicator was determined to be degraded, but on the watershed scale a "maintain" was checked. This is because the amount of canopy cover removed during the proposed Sugar Pine harvest (about 45 acres) and Red Top II (1-2 acres) is small when compared to the long-term baseline in the watershed (the Deadman/Dompier area alone consists of 25,757 acres, of which the BLM and FS manage 73%). Clearing of trees around selected sugar pines over 169 acres is likely to affect canopy cover more like a thinning than a regeneration harvest, and much of the canopy cover lost should be restored within 5 to 10 years due to increased growth rates of the remaining trees. The salvage in Red Top II would not reduce canopy cover at all, although a few acres of green trees would also be harvested. Thus, the adverse effects of the sixth field "disturbance history" degrade should not impair recovery of the watershed.

During the same ten year period, other timber sales on Federal land will be proposed, but (according to the WA) approximately 44% of the BLM-managed land in the Deadman/Dompier watershed will be protected as RR or other withdrawn areas, as will a similar amount of FS-managed land. Because more than two-fifths of the Federal forest land in the watershed (the most important portion, from an anadromous fish viewpoint) will be protected from non-restorative activities, the relatively small amounts of regeneration harvest, etc. proposed for GFMA and Connectivity lands should not retard the recovery of the watershed as a whole. The slight increases in factors which may affect peak flows are also discussed in the EA for the sale.

Based on the EA and ACS Consistency Review for the three proposed timber sales in the Upper South Umpqua watershed, it appears that all of the relevant S&Gs would be observed, with the possible exception of TM-1 in Sugar Pine and Red Top II (see discussions under "Project-level effects"). Compliance with the nine ACS objectives is also adequately documented by the BLM. Compliance with the sixth objective, "maintain and restore instream flows..." is discussed in the previous paragraphs.

Little River watershed. Emile is proposed for the Little River watershed, which is a non-Key Watershed under the NFP. For this action, the BLM determined that all of the habitat indicators would be maintained at the Little River watershed scale, despite the project-level "degrades" which were recorded in the Emile Creek sixth field HUC. As noted under the Myrtle Creek watershed, above, the "sediment" and "substrate" indicators were thought to be degraded due to road and skid trail-related actions (such as maintenance, renovation, and decommissioning). In the long-term and on the watershed scale, however, these "degrades" were not thought to be consequential because of their short-term and highly localized nature. Proper road maintenance and renovation, in fact, is likely to diminish the adverse effects of roads by allowing the drainage design features to work properly. Decommissioning should be an even more beneficial action.

Also for Emile, the "disturbance history" indicator was determined to be degraded, but on the watershed scale a "maintain" was checked. This is because the amount of road in the watershed would be slightly reduced (by 0.65 miles), and because the amount of canopy cover removed during the sale (68 acres of regeneration harvest, 71 acres of selective cut and commercial thin) is small when compared to the long-term baseline in the watershed. Thus, the adverse effects of the sixth field "disturbance history" degrade should not impair recovery of the watershed. Regarding the "disturbance history" effects on peak flows, for example, the BLM states (in its ACS consistency write-up) that full hydrologic recovery currently exists on about 76% of the watershed (about 100,000 acres of about 132,000 acres). This proportion is expected to grow to approximately 86% in the next decade. By this standard, the amount to be harvested is small, so that even with canopy cover reduced to zero on 68 acres, the watershed as a whole would move closer to hydrologic recovery due to passive restoration of canopy cover.

During the same ten year period, other timber sales on Federal land will be proposed, but a minimum of 25% of the Federal forest land in the Little River watershed will be protected as RR (the actual proportion of RR in the watershed is actually substantially higher, because much of the RR protecting intermittent streams has not been incorporated into the database). Because at least a quarter of the Federal forest land in the watershed (the most important portion, from an anadromous fish viewpoint) will be substantially protected from non-restorative activities, the relatively small amounts of regeneration harvest, etc. proposed for non-RR lands, these actions should not retard the recovery of the watershed as a whole. The slight increases in factors which may affect peak flows is also discussed in the EA for the sale.

Based on the EA and ACS Consistency Review for the proposed Emile timber sale in the Little River watershed, it appears that all of the relevant S&Gs would be observed. Compliance with the nine ACS objectives is also adequately documented by the BLM. Compliance with the sixth objective, "maintain and restore instream flows..." is discussed in the previous paragraphs.

Rock Creek watershed. Lower Conley is proposed for the Conley Creek and Taylor Creek sixth-field HUCs of the Rock Creek watershed, which is a non-Key Watershed under the NFP. For this

action, the BLM determined that all of the habitat indicators would be maintained at the watershed scale, despite the project-level "degrades" which were recorded at the project scale. As noted under "Project-level effects," the "sediment," "substrate," and "disturbance history" indicators were thought to be degraded due to the regeneration harvest. Because the harvest of 41 acres of timber in Lower Conley has already been accomplished, the action on which the BLM is consulting is mainly the yarding and road work associated with getting the timber to the mill. The BLM believes that the level and type of regeneration harvest proposed would not have a substantial effect on the indicators when viewed on the watershed scale for the long term because of the relatively small impact of the project-level effects would be overwhelmed by (primarily passive) restoration efforts. This is because a small amount of roads would be renovated/improved and a small amount decommissioned (see "Proposed Actions, above), and because, over the long-term, the growth of early seral vegetation. For example, according to information in the Rock Creek WA, in 1995 about 18% of the Federal ownership in the watershed had vegetation in the 0-15 year age class with an additional approximately 54% in the 15 to 40 year age class. In this watershed, substantial hydrologic recovery is considered to be achieved when vegetation reaches 27 to 32 years of age, so that approximately 45,000 acres in this watershed have recently or will soon (within the next 10-12 years) become hydrologically recovered.

During the near-term, other timber sales on Federal land may be proposed, but (according to the WA) approximately 63% of the Federal forest land in the Rock Creek watershed will be protected as LSR or other reserve (including RR). Therefore, because most of the Federal forest land in the watershed (including all of the most important portion, from an anadromous fish viewpoint) will be protected from non-restorative activities, the relatively small amounts of regeneration harvest, etc. proposed for GFMA and Connectivity lands should not retard the recovery of the watershed as a whole.

Based on the EA and ACS Consistency Review for Lower Conley, it appears that all of the relevant S&Gs would be observed. Compliance with the nine ACS objectives is also adequately documented by the BLM. Compliance with the sixth objective, "maintain and restore instream flows..." is discussed in the previous paragraphs.

Elk Creek watershed. The BLM has proposed Buck Creek for the Elk Creek watershed (which is a non-Key Watershed under the NFP) and determined that all of the habitat indicators would be maintained at the watershed scale, despite the five project-level "degrades" which were recorded in the Upper Pass Creek and Upper Elk Creek sixth field HUCs. As noted under "Project-level effects," above, the "sediment" and "substrate" indicators were thought to be degraded due to culvert replacement, road maintenance and renovation, and road decommissioning. As discussed under the Myrtle Creek watershed timber sales, however, these "degrades" were not thought to be consequential in the long-term and on the watershed scale.

Regarding "disturbance history," the commercial thinning (from below) proposed for Buck Creek would reduce canopy cover from the existing level, but growth of the remaining trees should quickly (within 5 to 10 years) provide the previous amount of canopy cover. (See also the discussion on

commercial thinning in RR in the Upper Smith watershed discussion, below.) In addition, according to the BLM's ACS consistency analysis, in the next ten year period more than 3,400 acres in the watershed would achieve hydrologic recovery and therefore watershed-scale changes in hydrologic function should not be impaired. Moreover, passive restoration would proceed in all of the 70% of the Federal watershed that is in the LSR or RR designations. Even if no active restoration in the watershed occurs, in the long-term, the watershed will continue to recover, as a result of passive restoration in RRs and LSRs.

Similar to the proposed timber sales in the Upper Smith River watershed, riparian commercial thinning in Buck Creek would accelerate the development of late successional vegetation. Although some site-specific short-term adverse effect may occur, the long-term effect would be restorative. On the watershed scale, however, the adverse and beneficial effects would be small (see discussion for Upper Smith River watershed). It appears that TM-1 and all of the other relevant S&Gs would be observed, while compliance with the nine ACS objectives is also adequately documented.

Upper Smith River watershed. The BLM has proposed Foghorn Cleghorn for the Upper Smith River watershed (a Tier 1 Key Watershed) and determined that all of the habitat indicators would be maintained at the watershed scale, despite the project-level "degrades" which were recorded in the project-level MPI. As noted under "Project-level effects," above, the "sediment" and "substrate" indicators were thought to be degraded in both sixth field HUCs due to culvert replacement, road maintenance and renovation, and road decommissioning. As discussed under the Myrtle Creek watershed, however, these "degrades" were not thought to be consequential in the long-term and on the watershed scale.

The BLM also determined that "disturbance history," "LWD," and "RR" would be degraded in both sixth field HUCs, but these indicators would be maintained at the watershed scale. Regarding "disturbance history ," Foghorn Cleghorn would involve thinning, rather than regeneration harvest, so while trees would be harvested, effect on hydrologic processes, for example, would be less. As with most of the other thinning harvest prescriptions in this BO, the decrease in canopy cover that would be caused by the proposed harvest is expected to be short-term and not hydrologically significant. This is because much of the canopy would remain after the treatment and the full canopy should return within 5 to 10 years because of enhanced growth of the remaining trees. During rain-on-snow events, snow in and under the canopy tends to melt less quickly than snow on the ground that is subject to direct contact by warm wind and rain. Thus, the retention of substantial canopy is likely to slow the runoff of water during rain-on-snow events. Because rain-on-snow causes many of the peak flow events in BLM-managed areas, harvest prescriptions which retain the majority of canopy cover are also likely to contribute to the maintenance of peak flow characteristics. On the whole, the BLM estimates that the proportion of Federal land in the Upper Smith River watershed that is hydrologically recovered will increase from 90% to 96% in the next ten years.

In addition, as noted in the BLM's ACS objective reviews, 98% of Federal land in the watershed is either in LSR or RR. Thus, only actions which would not retard recovery are to occur. A small amount of road decommissioning will also occur with the timber sales, which contributes to the "maintain" rating for the "disturbance history" indicator at the watershed scale.

In its ACS Consistency Review for the Upper Smith watershed timber sale, the BLM noted that RRs were designated as two-site potential tree heights (400 feet) for fish-bearing streams. Although S&G TM-1 normally prohibits tree harvest within RRs, in this sale the development of late-successional habitat should be accelerated (see Middle and Upper Smith River WA), a restorative action. Therefore, thinning in the RRs is considered to be consistent with the ACS, and would also justify the "maintain" rating for the "LWD" and "RR" MPI indicators. Within RRs to be thinned, a 20 to 200-foot no-cut buffer along streams would be maintained to prevent adverse temperature, bank stability, etc. effects. From the BLM's review, it appears that TM-1 and all of the other relevant S&Gs would be observed. Compliance with the nine ACS objectives is also adequately documented.

Upper Umpqua watershed. The BLM has proposed Diamondback for Upper Umpqua watershed (which is a non-Key Watershed under the NFP) and determined that all of the habitat indicators would be maintained at the watershed scale, despite the project-level "degrades" which were recorded in the Lost Canyon and Yellow Creek sixth field HUCs. As noted under the Myrtle Creek watershed, above, the "sediment" and "substrate" indicators were thought to be degraded due to road and skid trail-related actions such as maintenance, renovation, and decommissioning. In the long-term and on the watershed scale, however, these "degrades" were not thought to be consequential, because of their short-term and highly localized nature. Proper road maintenance and renovation, in fact, is likely to diminish the adverse effects of roads by allowing the drainage design features to work properly. Decommissioning should be an even more beneficial action.

As noted under "Project-level effects," above, the "disturbance history" indicator was determined to be degraded. However, on the watershed scale, a "maintain" was checked. This is because the amount of canopy cover removed during the proposed Diamondback harvest (about 97 acres) is small when compared to the long-term baseline in the watershed. For example, regarding the "disturbance history" effects on peak flows, according to information provided by the BLM about 3,687 acres of Federal ownership in the watershed has vegetation in the 0-10 year age class, about 4,762 acres of Federal ownership is in the 11-20 year age class, and about 6,121 acres of Federal ownership is in the 21-30 age class. In this part of Douglas County, land is considered to be hydrologically recovered when vegetation reaches about 30 years of age. Therefore, within the next 10 years (the long-term), more than 6,000 acres in the watershed will achieve full hydrologic recovery. During the same period, growth in another 8,400 acres will achieve partial recovery. Even with canopy cover reduced to zero on 97 acres, the watershed as a whole would move closer to hydrologic recovery, as a result of passive restoration of canopy cover.

During the same ten year period, other timber sales on Federal land will be proposed, but (according to the WA) approximately 84% of the Federal forest land in the Upper Umpqua watershed will be protected as LSR or RR. Because more than four-fifths of the Federal forest land in the watershed (including all of the most important portion, from an anadromous fish viewpoint) will be protected from non-restorative activities. The relatively small amounts of regeneration harvest, etc. proposed for GFMA and Connectivity lands should not retard the recovery of the watershed as a whole.

Based on the EA and ACS Consistency Review for the three proposed timber sales in the Upper Umpqua watershed, it appears that all of the relevant S&Gs would be observed. Compliance with the nine ACS objectives is also adequately documented by the BLM. Compliance with the sixth objective, "maintain and restore instream flows..." is discussed in the previous paragraphs.

Effects Summary. NMFS has considered the applicability of these analyses to each of the timber sales identified in the BA and in this letter. The NMFS is not aware of any other special characteristics of the particular sales that would cause greater or materially different effects on the subject salmonid species and their habitat than is discussed in these references. Similarly, NMFS is not aware of any newly available information that would materially change these previous effects analyses. In that substantial portions of all of the watersheds discussed in this Opinion are privately-owned, the NMFS assumes that the cumulative effects of non-Federal land management practices will continue at similar intensities as in recent years (LRMP/RMP Opinion, pages 41-42, NMFS 1997b).

The effects of the timber sales (and associated road-related activities) on UR cutthroat, OC coho, and their habitat are presented in the BA prepared by the BLM, specifically in the project and watershed-level MPIs, ACS Consistency Reviews, WAs, and EAs. NMFS finds those descriptions to be adequate for this analysis. Based on this information, the NMFS does not consider these actions to be likely to result in more effects than expected or considered in the LRMP/RMP Opinion (1997b). In particular, the BLM determined, and the NMFS concurred, that relevant NFP S&Gs would be followed, and that ACS objectives would be met at the watershed scale and in the long term when the effects of the proposed timber sales are combined with the environmental baseline. This ACS consistency determination was made because the BLM showed that, despite their proposed actions, watershed habitat indicators would be maintained over the long-term.

The NMFS expects that ACS objectives which may be affected by the subject actions will be met for the following reasons: (1) potential sediment input from the small amount of proposed temporary, semi-permanent, and permanent road construction will be minimized by implementation of appropriate mitigation measures; temporary, semi-permanent and permanent roads would not occur in riparian areas and only a small amount of temporary road construction would occur in RR; (2) potential sediment input from proposed road maintenance, improvement, renovation, storm-proofing, decommissioning, drainage improvement, etc. will also be minimized by implementation of appropriate Best Management Practices, and the long-term effects of these actions should be beneficial because of lessened sediment and hydrologic effects from existing roads; (3) thinning in RRs in Emile, Buck Creek,

and Foghorn Leghorn will accelerate attainment of large trees to serve as a future source of large woody debris for streams in the sale area; RR salvage in Red Top II and clearing around selected sugar pines in RR in Sugar pine will promote other BLM goals without adversely affecting RR function; otherwise, no timber harvest will occur in RRs; (4) the ground compacting activity (partial suspension and tractor yarding) will be mitigated through ripping and water-barring of skid trails and none of the hauling and yarding activity (except for that associated with riparian thinning) will occur in RRs; and (5) the amount of canopy cover removed in the timber sales would be small compared to the passive restoration which will occur in the watersheds over the long-term, and should not impair recovery of the watersheds. Despite the minor short-term adverse effects, these actions maintain or restore essential habitat functions, and will not impede recovery of salmonid habitat, a long-term goal of the NFP.

Section 7(a)(2) Determinations

The NMFS concludes that, when the effects of these proposed site specific actions are added to the environmental baseline and cumulative effects occurring in the relevant action areas, they are not likely to jeopardize the continued existence of UR cutthroat, OC coho salmon, or OC steelhead trout.

Additionally, the NMFS concludes that the proposed actions would not cause adverse modification or destruction of UR cutthroat critical habitat. This is because our "no jeopardy" conclusion is based on the effects of the actions on UR cutthroat habitat and because the "adverse modification or destruction of habitat" standard is defined similarly to the "jeopardy" standard. Because we have determined that the actions would not jeopardize the continued existence of UR cutthroat, it follows that UR cutthroat critical habitat would not be adversely modified or destroyed.

In reaching these conclusions, NMFS has utilized the best scientific and commercial data available as documented herein and by the BA and documents incorporated by reference.

Incidental Take Statement

Effects resulting from temporary road construction, road maintenance, road renovation and storm proofing, and road and skid trail decommissioning (e.g., sedimentation) are expected to be the primary source of incidental take associated with the proposed timber sales covered by this Opinion. Because of the limited amount of new road construction and location of the road, and the implementation of appropriate mitigation measures for the other road-related activities, sediment impacts are expected to be minimized. Effects of harvesting in riparian reserves are also expected to be minimal because of location, land form, and harvest method. The NMFS expects that the incidental take associated with the other effects (discussed in NMFS 1997d) of the subject timber sales will also be minimal.

Adverse effects of management actions such as these are largely unquantifiable in the short-term and may not be measurable as long-term effects on the species' habitat or population levels. Therefore, even though the NMFS expects some low level of incidental take to occur due to these actions, the

best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species themselves.

The incidental take statement in the LRMP/RMP Opinion (NMFS 1997b) provided reasonable and prudent measures and terms and conditions to avoid or minimize the take of listed salmonids from actions involving road construction (pages 65 and 70-72) that may be applied to site specific actions if appropriate. NMFS hereby applies the findings, reasonable and prudent measures, and terms and conditions set forth in the Incidental Take Statement of the programmatic LRMP/RMP Opinion (NMFS 1997b) to the site specific road construction action.

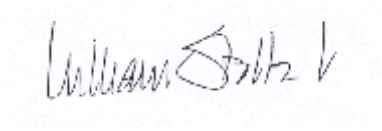
To the minimal extent that incidental take may result from the non-road construction aspects of the subject timber sales, NMFS finds that it is appropriate to prescribe reasonable and prudent measures, with terms and conditions, to further minimize or avoid such incidental take. Based on the effects analysis presented in NMFS (1997b), NMFS finds that the measures, terms, and conditions proposed in that document are appropriate for these actions. Therefore, NMFS further authorizes such minimal incidental take, provided the Roseburg BLM complies with those measures, terms, and conditions.

Conclusions

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). The Roseburg BLM must reinitiate this ESA consultation if: (1) the amount or extent of taking specified in the incidental take statement above, is exceeded; (2) new information reveals effects of the action that may affect listed species in a way not previously considered; (3) the action is modified in a manner that causes an effect to the listed species that was not previously considered; or (4) a new species is listed or critical habitat designated that may be affected by identified action.

If you have any questions, please contact Dan Kenney of my staff at (541) 957-3385.

Sincerely,



William Stelle, Jr.
Regional Administrator

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